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This publication is part of a special series of reports prepared by the U.S. Environmental Protection Agency's Office of Solid Waste Management Programs. These reports are designed to assist municipal officials in the planning and implementation of processing plants to recover resources from mixed municipal solid waste.

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4. Financing (SW-157.4)
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RESOURCE RECOVERY PLANT IMPLEMENTATION: GUIDES FOR MUNICIPAL OFFICIALS

FINANCING

by Robert E. Randol*

State and local governments annually spend around $35 billion to purchase all forms of capital equipment. In the future, solid waste management will make demands for an increased share of these public funds. It is estimated that in the next 10 years between $1.0 to $7.5 billion will be spent to construct new disposal and resource recovery facilities and to maintain and upgrade existing ones. This immense capital improvement and acquisition program results, in part, from the need to conform to new Federal and State regulations, the development of more capital-intensive systems, and growing public concern for the environment. Financing such expenditures has become an increasingly complex and demanding task for local governments.

This publication will briefly describe the financing options available to cities, states, and other public instrumentalities. The discussion will provide practical information in simple language that will include:

- A discussion of the role of financial management in the decision-making issues.
- A description of the financial mechanisms--their characteristics, advantages, and disadvantages.
- An identification of the costs--not only the interest costs, but also all other directly associated front-end costs, such as legal fees, bond counsel fees, consulting engineering fees, election costs, and investment banking fees;
- A description of the action--a description of the major participants outside of the local political jurisdiction who are involved in the financing decision.

Rather than specific recommendations, general guidance is provided concerning the use of alternative financing methods. The appropriateness of a specific method is dependent on the characteristics of the individual procurement and the types of contracts negotiated between the public and private sectors.

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In this publication, contracts and their effect on financing will be discussed where appropriate. They will also be discussed in the Implementation Guide publication entitled Contracts and Risks. It should be noted that contracts and finance are interrelated; the investigations and decisions in one area should proceed simultaneously with those in the other.

Although the motivation for writing this publication is to describe a local government's options for financing resource recovery plant facilities, these options are also appropriate for almost any capital-intensive projects costing more than $500,000. Instruments that might be used to finance purchases in the $10,000 to $500,000 range will not be described. The major financing options appropriate for this range are capital budget allocations, funds from previously authorized general obligation (GO) bonds, conventional leases, bank borrowings, and note issues.

THE ROLE OF FINANCING IN THE DECISION-MAKING PROCESS

Public financial management addresses three specific questions:

What to buy--a decision involving technology;

How much to spend--a decision involving planning and economics;

How to finance the project.

The first two questions often are not treated as financial considerations, although they should be since their answers affect the financing choice. For example, if a high-risk technological option were chosen for a project, the financing mechanism would reflect this uncertainty, and a high rate of return or a risk-reducing type of financing would be needed to attract investors. Similarly, the size of the financing also affects the choice of the financial option. The means of financing purchases that cost less than $500,000 differ from those that cost more.

Financing is one of the important considerations in resource recovery procurement. Financing decisions are often difficult. For this reason, it is recommended that financial experts become an integral part of the Resource Recovery Task Force in order to give advice early in the decision-making process. The reasons for this recommendation are:

- Quick Feedback. A financial adviser can act as an early screening agent in evaluating the financial risks of specific resource recovery systems and implementation plans.

- Expert Advice. The financial community can give expert, and often free advice, especially if the bond offering will be negotiated rather than competitively bid.

- Time Saved. Some financing mechanisms (particularly leverage leasing and pollution control revenue bonds) require Internal Revenue Service (IRS) rulings if they are to be utilized. Therefore, early groundwork is necessary if these mechanisms are to be used without delay. Also, the contracts between the public and private sectors for resource recovery plant procurement require lengthy negotiations. Financing is a central part of these contracts, and early consideration can help expedite the ultimate negotiations.

The third factor, that of time saved, is particularly important. Recent experience has shown that negotiation of contracts for resource recovery systems is difficult. For example, the State of Connecticut has had an eight-person staff, plus an investment banker and a general counsel, working for nearly one year to finalize its contract for a $50 million resource recovery system. Contract-signing delays increase capital costs. The following hypothetical situation shows the costs of delays. A $50 million purchase is delayed for 3 months because of financing complications. The private sector's bid price escalates with an inflation index (an average of 1 percent per month). Therefore, as a result of delay and inflation, the capital cost of the facility increases by $1.5 million, or $16,000 per day.

FINANCING ALTERNATIVES

Basically, local governments draw capital for purchasing facilities and equipment from two sources: current revenues and borrowings.*

Current revenue, or capital budget financing, is based upon the "pay as you go" philosophy; that is, all purchases are fully paid for as they are made. This practice is common in the solid waste area. It is used mainly to purchase collection vehicles and solid waste disposal sites. Its principle advantage over other forms of financing is its simplicity. It requires few institutional, informational, analytical, or legal arrangements. However, it is dependent upon the community's ability to raise surplus capital, and, therefore, may not be feasible to finance "big ticket," capital-intensive purchases.

Borrowing is the local government's second alternative for financing purchases of equipment and facilities. Borrowing options may be divided into three categories.

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*A third alternative is to contract with private enterprise for the service, thereby shifting the capital-raising burden to the private firm. With the exception of pollution control revenue bonds, this option will not be discussed, but it warrants consideration as a potentially feasible and attractive alternative.

- Short-term options--(1 to 5 years) to purchase assets that cost less than $500,000.

- Medium-term options--(5 to 10 years) to finance capital purchases between $500,000 and $1,000,000.

- Long-term options--(10 to 30 years) to finance capital purchases over $500,000.

Unless a local government generates large revenue surpluses, short-and medium-term financing alternatives have a limited place in funding capital-intensive purchases, such as resource recovery systems. The repayment of the principal of the loan is often too heavy a drain on the local government's cash flow. Examples of short-and medium-term borrowing instruments are bank loans and most leasing agreements.* Bank loans are often used to finance front-end planning and some of the construction costs of expensive facilities. Leasing, though not typically classified as a borrowing instrument, functions in the same manner, especially if the local government has the right to purchase the asset at fair market value after the stipulated number of lease payments. Neither of the two examples is usually an attractive alternative to long-term asset financing.

Long-term municipal financial alternatives can be categorized into two broad types: revenue bond (project) financing and general obligation financing. Within each category, specific financing mechanisms exist. Figure 1 groups the basic public and private long-term debt financing options into project and general obligation categories. Grouping financial instruments in this or any other way is hardly clear-cut, and a certain amount of editorial license has been applied. Some of the financial instruments may have characteristics of another category, depending upon the contractual liability the contracting parties assume.

Project Financing

With project financing, the bond principal and the interest repayment are guaranteed by expected project revenues (dump fees and recovered product sales). The expected revenues must offset all future operating and capital recovery costs.

Typical mechanisms that may be grouped under project financing are municipal revenue bonds, industrial revenue or development bonds, and

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*Leasing can sometimes act as a long-term "borrowing" source. Lease terms for equipment usually run less than 5 years, whereas leases for real estate generally run for longer periods. Lease rates range between 10 and 18 percent, although it is possible at times to negotiate lower interest rates.

Figure 1

FINANCIAL OPTIONS

	Public Financial Instruments	Private Financial Instruments
Project Financings	Revenue Bonds	Pollution Control Revenue Bonds (without pledge of corporate general obligation)
General Obligation Financings	Municipal General Obligation	Corporate Bonds Pollution Control Revenue Bonds (with pledge of corporate general obligation)

pollution control revenue bonds.* The specific characteristics of municipal revenue bonds and pollution control revenue bonds will be summarized below.

Municipal Revenue Bonds. Municipal revenue bonds are long-term, tax-exempt obligations issued directly by municipalities, authorities, or quasi-public agencies. Project revenues are pledged to guarantee repayment of the debt. Municipalities have used revenue bonds to finance such services as bridges, sewers, and housing projects.

The typical revenue bond is negotiated rather than competitively underwritten. A negotiated offering differs from a competitive offering in that the city negotiates with one underwriter to determine what profit the underwriter will make.+ Negotiated interest rates are generally higher than competitive interest rates. However, some of these extra costs are offset by the free advice the investment banker provides during its examination of the project and its preparation of the revenue bond circular and official statement.

A revenue bond circular and official statement summarize for prospective purchasers of the bond the necessary information about the project. The documents may take many months to prepare and will contain a great deal of information about the project's technical and economic feasibility. Usually, the local government will hire a "third party" consultant to confirm the investment banker's estimates of costs and revenues.

Characteristics of municipal revenue bonds include:

- Voter approval is not required. Usually, referendums are not necessary to approve issuance of a revenue bond. Decisions may be made directly by municipal officials. This may reduce the incremental delays and costs which result from a citizen vote.

- Municipal debt limitations usually do not apply. Since projects are not backed by the taxing power of a city, revenue bonds often are not constrained by a city's current debt ceiling, which is a function of its tax base.

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*The major distinctions between industrial revenue bonds (IRB's) and pollution control revenue bonds (PCRB's) are that IRB's, under most circumstances, can only be used to raise a maximum of $5 million in capital. This money must be targeted for industrial development. With PCRB's, capital limitations do not apply, but the bonds must finance pollution control equipment.

+Bidders may not respond to competitive offerings for technically complex or risky projects because the expected returns from the underwriting may not sufficiently offset the initial bidding costs.

- Financial responsibility is encouraged. Prospective bond purchasers act as a check on the financial soundness of the project being financed.

- Revenue bond issuance requires detailed information. Revenue bond issuance requires detailed documentation including a summary of the project's technology, products, and economic viability. This summary (called an official statement) is necessary because prospective buyers must have sufficient information to assess the adequacy of the projected revenue stream. This complexity makes the cost of issuing revenue bonds relatively high compared to GO bonds.

- The minimum size offering is $1 million. Revenue bonds are generally not suitable for financing projects that cost less than $1 million due to their high fixed "front-end" administrative and transaction costs. (These costs will be discussed later in this section.)

- Interest rates are higher than those of general obligation bonds. Interest rates on revenue bonds are approximately 30 to 45 basis points* higher than on similarly rated general obligation bonds. Revenue bonds pay higher interest rates because the investor assumes a higher risk when he invests in them. In some cases, revenue bonds, through contractual obligations, have been designed to have the risk attributes of GO bonds. Then, interest rates are comparable to those of GO bonds.+

- They may only be used to finance one project. A revenue bond may only be used for single project financing. In general, the mechanism is issued only when a major project, requiring long-term capital, is to be managed by an independent authority or by a distinct city agency, and only when the service provided will generate enough revenue to operate and maintain the facility, as well as to pay the interest and principal on the debt.

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*A basis point equals 1/100 of a percent. Therefore, if revenue bonds interest rates at 7.10 percent and GO rates are 6.75 percent, there is a 35 basis point differential. The spreads are derived from data published by the "Daily Bond Buyer," New York, New York.

+An example was the funding of the Harrisburg, Pennsylvania incinerator project. The city government created a "paper" solid waste authority whose only function was to hold legal title to the incinerator and to be directly responsible for the bonds. The City, then, signed a non-cancellable contract with the authority, with stipulated payments in the exact amount of the bond payment schedule. Because of that arrangement, investment advisors and the capital markets viewed the incinerator bonds as general obligation bonds. The bonds were rated as such and carried the same negotiated interest rate as Harrisburg's municipal GO bonds.

Nashville, Tennessee, used municipal revenue bonds to fund the Nashville Thermal Transfer Corporation, a non-profit corporation. The Corporation raised $16 million to fund construction of its resource recovery system which sells to downtown buildings steam for heating and chilled water for air conditioning. Nashville was able to sell its revenue bond to investors because of very strong marketing contracts it secured from the State. The marketing contracts are for purchase of the project's products and are non-cancellable. Essentially, they make the project as safe an investment as many general obligation bonds.

Pollution Control Revenue Bonds (PCRB's). Pollution control revenue bonds are long-term, tax-exempt obligations issued by a public instrumentality on behalf of a private enterprise.* The instrumentality acts as a vehicle through which a corporation may obtain low-cost financing.

PCRB's are secured by the assets of the corporation and by the projected revenues of the project. The credit-rating of the corporation determines the cost to that corporation of an industrial revenue bond. Interest rates on industrial and pollution control revenue bonds are over 50 basis points higher than those on GO bonds. Correspondingly, they are nearly 200 basis points below the current corporate debt rate.+ To make the bonds marketable, PCRB's often require a corporate guarantee of the debt service payments. If this pledge is made by a corporation with sufficient financial assets to guarantee the bonds, PCRB's may also be viewed as general obligation- type financings, albeit general obligations of private corporations.

The same characteristics that apply to municipal revenue bonds also apply to PCRB's. Three other characteristics that were not described are:

- The local government technically owns the facility. With a PCRB, the local government technically owns both the facility and the equipment, which it then leases to the private firm. The lease payments are tailored to meet the scheduled payments of principal and interest on the bonds. If the payments between the corporation and the local government are structured as an "installment sale", or as a "financing lease", the corporation may claim ownership for tax purposes. This gives the corporation tax benefits in the form of accelerated depreciation or investment tax credits. The savings from tax ownership should be passed on to the local government in the form of lower service fees.

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*The use of PCRB's is defined extensively in Section 103 of the IRS' Rules and Regulations.

+The First Boston Corporation. Tax-exempt Pollution Control Financing.

- They have seldom been used. PCRB's have seldom been used to finance post-consumer solid waste facilities. Administrative complexities and broadly defined tax guidelines frequently require IRS rulings which can delay financing by 6 months.* However, Section 103(c) of the IRS Rules and Regulations does indicate that PCRB's may be used to finance resource recovery facilities as long as 65 percent of the waste input is post-consumer waste and the post-consumer waste is deemed "valueless".

- They require long-term contracts. A major stumbling block to using industrial revenue bonds for financing solid waste facilities is whether or not a community may sign a long-term contract with a minimum supply of solid waste. While for security, these issues require long-term agreements, many States do not permit communities to enter into lengthy service contracts. This problem was recently solved by New York State which now allows its cities (with the exception of New York City) to make major long-term contractual committments.

General Obligation Financing. The basic instrument for municipal general obligation financing is a general obligation bond. With general obligation financing, the capital market evaluates the credit-worthiness of a local government (or corporation) and does not specifically evaluate the technical and marketing risk of a particular project. This is different from project financing. Until more technical and economic information on resource recovery systems is developed, GO bonds may have the most market acceptance and will have a correspondingly lower interest rate compared to alternative tax-exempt instruments.

General Obligation Bonds. General obligation bonds are long-term, tax-exempt obligations secured by the full-faith-and-credit of a political jurisdiction which has the ability to levy taxes. In most cases, the full-faith-and-credit clause pledges the general revenue of that jurisdiction.

A typical GO bond is offered competitively for sale to bidders. A competitive bid solicitation invites investment banking houses and banks (underwriters) to make sealed bids for the right to purchase and resell the bonds. Usually, underwriting syndicates are formed by groups of firms to purchase the entire issue. The bidder offering the lowest net interest cost to the jurisdiction wins the right to place the bonds with its customers.

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*Four rulings are pending as of June 1975. There is uncertainty regarding the type of resource recovery facility the IRS will deem eligible for PCRB financing. Thus, PCRB financing may not be available in many cases.

Interest rates on GO bonds vary according to the credit-rating of the jurisdiction issuing the bonds, as well as the availability of money in the capital market. Credit-ratings are made for a fee by Standard & Poor's Corporation and Moody's Investors Services, Inc. Currently, interest rates vary between 6 and 8 percent. Current rates are published every Friday in the "Daily Bond Buyer."

Characteristics of general obligation bonds include:

- Voter approval required. Typically, voter approval is necessary.

- Low interest rates. GO bonds carry the lowest coupon (interest) rate of any financial instrument and, also, have a low effective interest rate* compared to other long-term debt instruments. The interest rate is low because investor risk is minimal resulting from guarantees by the city's tax-collecting capacity.

- Minimum offering size. The effective minimum offering size for GO bonds is approximately $500,000. General obligation bonds can be used to finance any project approved by the voters. Therefore, if a project costs less than $500,000 and a local government would like to finance it through GO bonds, several projects will be grouped for a single offering.

Chicago, Illinois, and Ames, Iowa, are examples of cities which have issued general obligation bonds to fund their resource recovery systems.

Other Long-term Financial Instruments. There are two other long-term financial instruments that may be used in the future in the municipal sector to finance medium-to long-term use of capital equipment. They are leasing and leverage leasing.

Leasing. Traditional leasing is being used frequently by local governments to finance medium-term use of capital equipment. A lease arrangement involves a third party (lessor), who purchases an asset with his own money, and the local government (lessee), who rents use of the asset. Within this arrangement, it is possible to institute a sub-lease from the local government to the private operator for operation of the resource recovery system. Usually, the length of leases does not extend beyond 5 years, although recently some leases have been made for 20 years.

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*The "effective interest rate" may be defined as the interest rates on the actual capital received. This calculation may be determined by dividing the yearly interest payments by the net proceeds a city receives from a particular financing option. Examples of the net amount of money a local government may expect to receive are presented later in this paper.

Leasing characteristics are:

- Demand on municipal capital outlays is reduced. It allows the local government to use an asset without forcing the city to raise the capital "down payment" necessary to purchase the asset. The city pays for use of the equipment in yearly payments.

- Lease financing can be instituted rather quickly. There are few institutional roadblocks that may delay the financing.

- Lease rates are high. Currently, rates are ranging between 10 and 18 percent of the capital cost of the equipment. This contrasts with lower effective interest rates on tax-exempt bonds.

- After the termination of the lease, the local government will neither own nor control the facility. This disadvantage can be reduced if, in the leasing contract, the local government stipulates options to either renew the lease or purchase the asset at fair market value at the end of the contract.

Leverage Leasing. Leverage leasing is technically not a financial instrument; rather, it is a financial package that combines several financial mechanisms. Leverage leasing is a complex mechanism to initiate that requires lengthy, convoluted rulings. It involves two major participants, a financial intermediary (lessor), and a local government (lessee). It differs from traditional leasing in that both the lessor and the local government provide capital funds to purchase the asset. Usually, the lessor puts up 20 to 30 percent of the cost of the asset, and the local government finances the remaining portion through a typical borrowing method.

The leverage leasing concept is based upon the benefits (lower long-term capital and interest costs) that accrue to a city if a financial intermediary, corporation or individual, is interposed between a long-term source of capital and the local government. The financial intermediary purchases the tax advantage of ownership which cannot be utilized by a local government, by charging the local government a very low interest rate on its share of the cost of the asset.* The low interest rate is possible because of the depreciation and investment tax credit accompanying tax ownership of the asset. Essentially, the depreciation and tax credit act to shelter the financial intermediary's other income, which allows it to receive an adequate after-tax return on its initial investment in the asset.

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*Lower than GO bond interest rate.

Leverage leasing characteristics are:

- It is new and legally complex. There have only been three leverage leases of municipal funds. Therefore, at least initially, lengthy IRS rulings will be required, taking possibly 6 to 9 months;

- At the end of the lease, the facility is owned by the lessor and not by the local government. This disadvantage will probably be minimal since, after 20 years (the term of the lease), the technology will most likely be obsolete. The local government can further minimize this disadvantage by stipulating options (as in all lease contracts) to purchase the facility at fair market value at the end of the lease or to renew the lease;

- Demand on municipal capital funds is reduced. A substantial portion of a project's required capital is supplied by a third party;

- Interest charges are reduced. Tax advantages available to a third party lessor permit him to supply capital at a very low cash return, while still maintaining his adequate, all-important, after-tax return. Table 1 shows how leverage leasing lowers the initial cost for a simplified $1 million, 20-year financing.

COMPARATIVE COSTS

Comparing the costs of different financial mechanisms is implicit in making financial decisions. When comparing costs, it will not suffice to review interest rates as they seldom represent the true cost a local government must pay on the borrowed capital. Rather, the local government should compare the "effective interest cost" and the "effective debt service rate" on the funds it finances.

The "effective debt service rate" may be defined as the yearly cost of the interest payments plus the yearly repayment of capital (capital recovery payment) divided by the amount of capital the local government actually received from the project. In making this calculation, it is important to note that, if a local government floats $10 million in bonds, the local government will not receive $10 million.* Depending on the financial mechanism, the local government can expect to receive 90 to 95 percent of the funds it financed.

Table 2 compares the cost of using GO bonds, revenue bonds, and revenue bonds with leverage leases to float a $10 million issue. The net proceeds a city is to receive will be reduced by the "front-end" costs

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*The commissions and legal fees a local government must pay are summarized in Table 2.

TABLE 1

LEVERAGE LEASING

	Borrowing Approach			Leverage Leasing Approach		
Source	Principal	Payment	Rate	Principal	Payment	Rate
Debt*	$1,000,000	$80,240	6.25%	$ 700,000	$61,760	6.25%
Equity	-0-	-0-	-0-	300,000	17,410+	1.5
Total	$1,000,000	$80,240	6.25%	$1,000,000	$79,170	4.88%

*Debt financed by typical PCRB. The 6.25% rate is arbitrary.
+Cash payment required on lessor's $300,000 equity capital for 5% after tax return. Tax advantages transferred are without cost to municipal lessee.

TABLE 2

$10 MILLION FINANCING

	Serial General Obligation Bonds	Municipal Revenue Bond*	Revenue Bond Leverage Leasing $7M by Revenue Bonds $3M by Lessor
I. FRONT-END COSTS			
Rating Agency Fees	$ 3,000	$ 5,000	$ 5,000
Commission to Underwriter	150,000	250,000	170,000
Counsel to Underwriter	5,000	7,000	7,000
Counsel to City	10,000	10,000	11,000
Bond Counsel	18,000	35,000	30,000
Accountants Fees	8,000	8,000	8,000
Initial Trustee Fees	6,000	6,000	6,000
Printing and Engraving	30,000	40,000	35,000
Third Party Engineer and Accountant		60,000	60,000
Debt Service Reserve		817,000	572,000
Election Cost	X+		
TOTAL	230,000	$1,238,000	904,000
II. NET PROCEEDS TO CITY	$9,770,000	$8,762,000	$9,096,000
III. YEARLY COST TO CITY‡			
GO Bond--5.75%	$ 848,000		
Revenue Bonds--6.25%		$ 883,000	
Leverage Leasing--4.88%*			$ 788,000
IV. EFFECTIVE DEBT SERVICE RATE§	8.7%	10%	8.6%

*IRB costs are not detailed, since all costs are passed on to the involved corporation.

+Election costs are unknown.

‡This is the dollar amount the city would have to pay to retire and pay the interest on the debt. It was assumed that a city made steady payments for the life of the financing to retire the debt. The payments were made semi-annually for twenty years.

The assumed interest rate for each debt instrument was arbitrary. The actual rate will vary according to the credit-worthiness of a project (or city) and the current capital market conditions.

*The 4.88% rate is the weighted average cost of capital.

§The Effective Debt Service Rate is the yearly percentage cost to the city. It was calculated by dividing the yearly cost (interest plus debt retirement) by the net proceeds a city received.

that are outlined in Table 2. These proceeds are the actual dollar amounts available to purchase a facility. The costs that are outlined are based on general assumptions and are only approximations. It has been assumed that the debt would be for 20 years at the stated interest rates and that it would be retired in steady yearly payments for the term of the financing.

Bond interest rates vary according to money market conditions and the bond's investment attractiveness determined by the rating agencies. The lower the rating assigned by Moody's or Standard & Poor's, the higher the interest rate required to attract investors.

In order to attract investors, medium-grade bonds offer a higher yield than prime-grade bonds (Table 3). For example, in August 1974, the average spread between interest rates for prime-and medium-grade bonds was 50 basis points. For a hypothetical 20-year, $40 million financing, an extra 50 basis points would cost a project an additional $2.6 million over the life of the project.

Figure 2 illustrates the impact of different interest rates on the cost per ton of building and operating a $40 million, 1000-ton-per-day resource recovery facility. The plant's expected throughput is 310,000 tons per year. Operating cost has been assumed to be $6 per ton. Figure 2 reflects the significant impact debt service has in contributing to the overall cost of operating a recovery system.

PARTICIPANTS IN THE CAPITAL FORMATION PROCESS

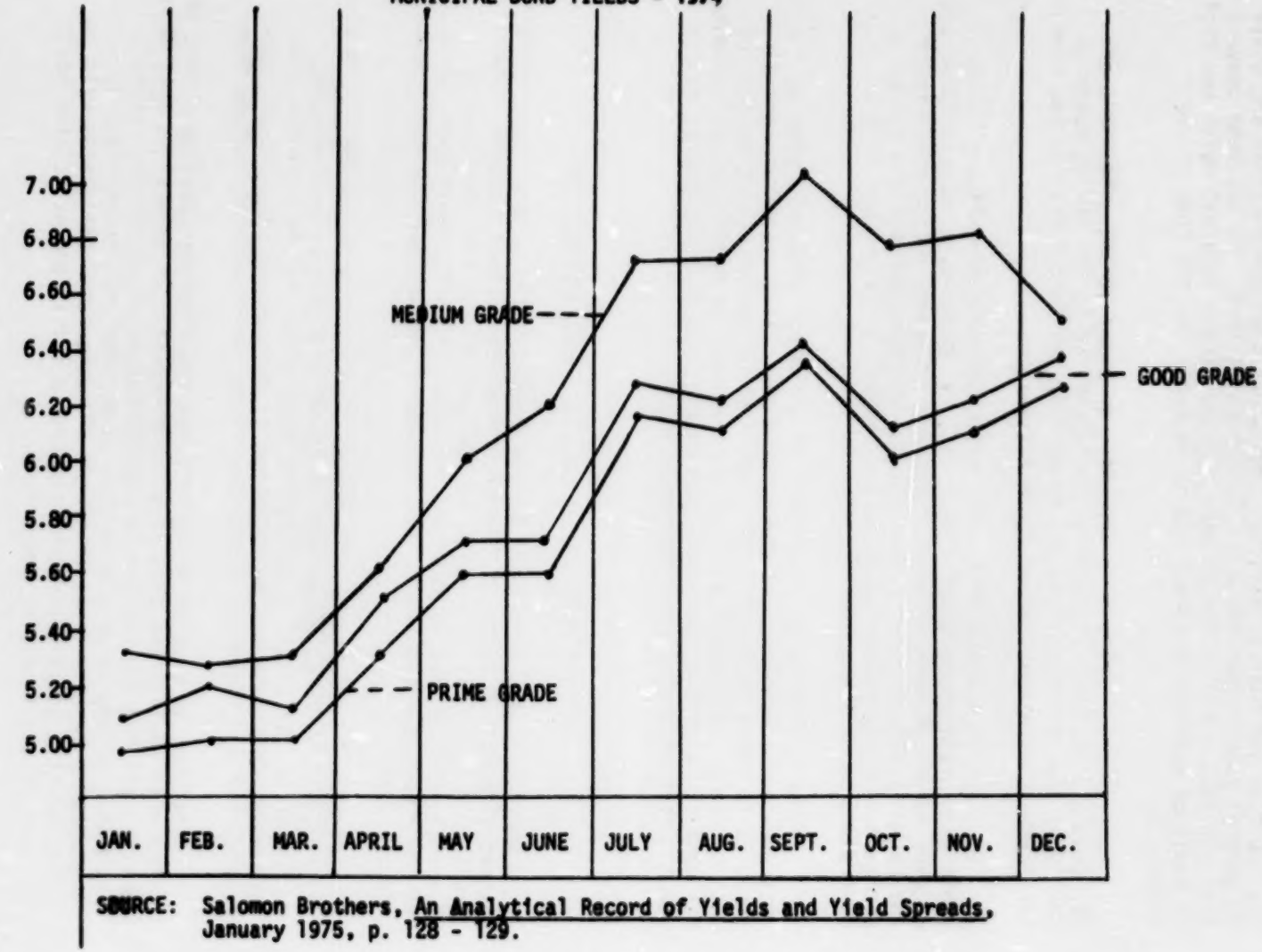
Many different actors may become involved when a local government attempts to obtain funds to finance a resource recovery system. The exact role played by each party is a direct function of the type of borrowing method that is employed. In the following paragraphs, the roles of the financial consultant, the investment banker, and the bond counsel are discussed.

Financial Consultants. Frequently, an outside financial consultant will assist the local government in choosing a particular financing mechanism or the specific variations most suited to the circumstances. Typically, this task may be performed by independent consultants, commercial banks, attorneys, accounting firms, or investment banking firms.

Sometimes an outside party performs two separate functions, that of a financial advisor and that of an underwriter. In this situation, it may be difficult for the advisor to provide completely objective analysis since when acting as an underwriter he may realize greater fees by recommending certain types of financial mechanisms. This risk will be minimized if a local government compares all real and associated costs for each of the financing mechanisms.

TABLE 3

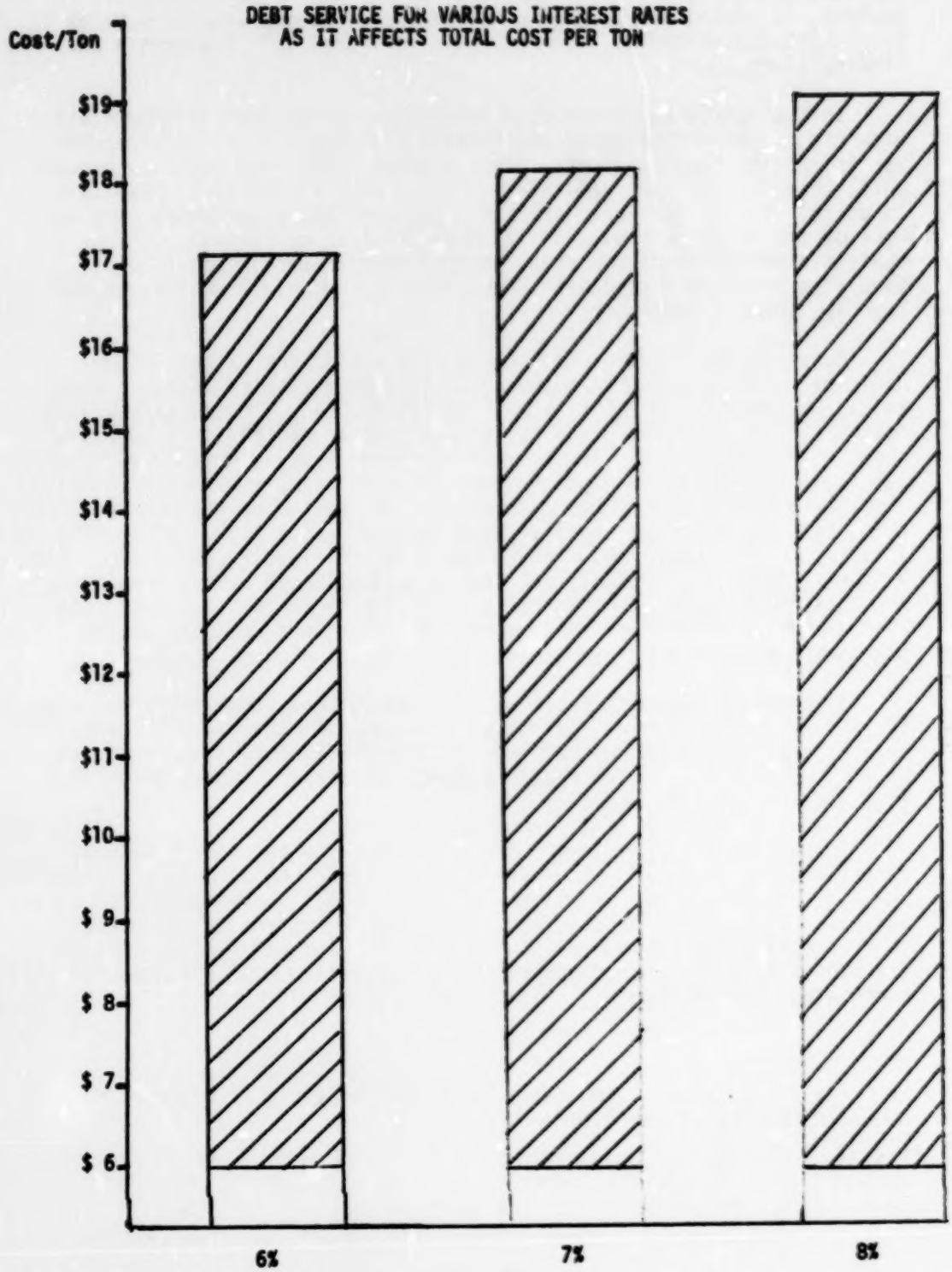
MUNICIPAL BOND YIELDS - 1974



SOURCE: Salomon Brothers, An Analytical Record of Yields and Yield Spreads, January 1975, p. 128 - 129.

FIGURE 2

DEBT SERVICE FOR VARIOUS INTEREST RATES
AS IT AFFECTS TOTAL COST PER TON



A financial consultant's primary role is to help a local government prepare its bond offering. A financial consultant's responsibility includes gathering all necessary data, preparing the bond circular, advising on timing and marketing methods, and recommending bond terms (e.g. maturity schedules, interest payment dates, call features,* and bidding limitations).

In a competitive offering, underwriters are invited to submit sealed bids through advertisements in appropriate journals with the selection variable being the lowest effective interest rate. The local government must, then, do its own preparatory work or hire a financial consultant to do it. For a negotiated offering, most of this preparatory work is done by the investment banker. In many small or medium-size cities, municipal officials do not have the time or the specialized financial knowledge required to prepare offerings. An outside financial consultant is, then, a necessity.

Many regional investment bankers make a practice of calling on municipal officials within their localities on a routine basis in order to become involved in the financial decision-making process as early as possible. One of their hopes is to persuade the municipality to use a negotiated underwriting (in those states where this is legal) with their own firms serving as the underwriter. On a straight interest rate basis, it appears that a negotiated underwriting may cost more than competitive offering. However, the costs may not necessarily be higher since some services will be performed without charge by the investment banker. For instance, when underwritings are done on a negotiated basis, frequently the investment banker will act as the initial financial consultant and charge no fee. Also, his bond counsel may provide free legal advice because he is assured of participation in the closing of the bond.

A financial consultant can be compensated in several different ways. If an independent firm or individual is hired, the charges will generally be a direct function of his efforts. If an investment banker is chosen, he will receive his profit from the management fees in the underwriting (the issuance of the bond).

Investment Banking Firms. The role played by investment banking firms, insofar as interaction with a community is concerned, is straightforward. Their function is to act as a financial intermediary that purchases bonds from the issuing city or other governmental unit and, in turn, sells them to the ultimate investor. The underwriter assumes the market risk of price fluctuations during this period and also fulfills a distribution function.

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*Call provisions allow bonds to be retired early if interest rates drop drastically in the future.

The investment banking community's contact with a local government depends on whether or not the bond underwriting is to be competitive or a negotiated bid. If competitive, it is not unusual for an underwriting syndicate to submit a bid without any direct contact with the local government. If the local government chooses to negotiate the underwriting, the investment banker acts as a financial consultant.

An investment banker charges a fee which is a percentage of the total bond underwriting. This fee can vary, of course, but on issues less than $5 million, 2 percent of the total issue is a common rate. It is a smaller percentage for larger bonds. The commission is usually segmented into three categories: a management, an underwriting, and a selling fee.

Bond Counsel. Another important party is the bond counsel. His main role is to render an opinion regarding the validity of a bond offering. This legal opinion is required on all municipal bond issues. The counsel must determine whether the bond issue is in compliance with all constitutional, statutory and charter provisions applicable to the local government issuing the bond. The fee charged by the bond counsel, like that of a financial consultant, is a function of his time and the size and complexity of the underwriting. Generally fees for general obligation bonds are somewhat less than for revenue bonds of comparable size. A typical bond counsel's fee for a medium-sized revenue bond($10 to $20 million) may range between .3 percent and .4 percent of the gross amount of the issue.

RESOURCE RECOVERY AND THE CURRENT CAPITAL MARKETS

Resource recovery technology and markets for recovered products are still in an early stage of development. Technological, market, and local institutional uncertainties result in economic uncertainty for recovery plants. Economic uncertainty dissuades potential investors.

Because of economic conditions in 1974 and 1975 (capital shortages, high inflation, and recession), capital financing has been difficult for many projects. When capital markets are weak, financing can be very difficult for smaller, less secure companies (Baa rated and less) and for more economically risky projects. In 1975, the Federal Reserve Bank is expected to expand the money supply. An expanded money supply will make more capital available. However, most experts continue to predict a significant capital shortfall over the next 10 years.

Availability of funds for financing resource recovery systems

Debt financing for resource recovery plants will be difficult to obtain unless the debt is viewed by investors as "secure," i.e., backed by the full-faith-and-credit" of a municipality or by a corporation with a substantial

financial base.* Project financing will be difficult to obtain, but may be available depending upon the strength of the contractual obligations that secure the bonds.

Capital markets are expected to be able to supply funds through general obligation bonds. Thus, public agencies which are willing to extend their general obligation debt for financing resource recovery systems should not, in general, be significantly affected by capital unavailability. Decisions of municipal officials on GO bond financing of recovery plants will hinge on several questions. One is whether the municipality is willing to assume the full capital responsibility and associated risk for a plant. Some municipalities would be willing to assume this risk (some already have), while others will undoubtedly be reluctant.

Of course, if a municipality assumes the responsibility of financing a system through its GO credit, it may have a significant impact on the debt load it is currently carrying. This impact will probably not be so great as to push it past its statutory debt ceiling, but it might require an increase in taxes, a politically unpopular move.

The impact on a municipality's debt load can be shown by data derived from Federal Reserve statistics. In 1973, the average per capita long-term debt obligation of State and local governments combined was $735 and for local governments was $480. A city with a population of 500,000 would have approximately $240 million in outstanding debt. If this city built a 1,000-ton-per-day resource recovery plant, costing about $50 million, it would effectively increase the city's debt load by 20 percent.+ This increase is sure to make many cities cautious about providing capital for plant construction.

The impact of a resource recovery plant on a municipality's debt load emphasizes the need of the municipality to explore the full range of capital financing mechanisms, to involve financial experts early in the decision-making process in order to minimize effective interest costs, to examine alternative institutional arrangements, and to minimize risk in implementation of resource recovery facilities.

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*Nearly every corporation in the resource recovery area does not have the balance sheet depth to assume absolute liability for more than one or two recovery systems. Therefore, the role of the private sector in financing resource recovery plants may be severely constrained.

+The significance of this data is skewed by the probability that a major city's current per capita debt is significantly higher than the nation's average per capita debt.

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*U.S. GOVERNMENT PRINTING OFFICE:1975 631-404/475 1-3